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09/413,348	10/06/1999	NORIHISA FUKUTOMI	Q56091	1912

7590 07/27/2004

SUGHRUE MION ZINN MACPEAK & SEAS
2100 PENNSYLVANIA AVENUE NW
WASHINGTON, DC 20037

EXAMINER

KIM, CHRISTOPHER S

ART UNIT	PAPER NUMBER
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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 09/413,348
Filing Date: October 06, 1999
Appellant(s): FUKUTOMI ET AL.

Diallo T. Crenshaw
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed June 18, 2004.

(1) *Real Party in Interest*

A statement identifying the real party in interest is contained in the brief.

(2) *Related Appeals and Interferences*

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

(3) *Status of Claims*

The statement of the status of the claims contained in the brief is correct.

(4) *Status of Amendments After Final*

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) *Summary of Invention*

The summary of invention contained in the brief is correct.

(6) *Issues*

The appellant's statement of the issues in the brief is correct.

(7) *Grouping of Claims*

Appellant's brief includes a statement that claims 2 and 6-9 do not stand or fall together and provides reasons as set forth in 37 CFR 1.192(c)(7) and (c)(8).

(8) *Claims Appealed*

The copy of the appealed claims contained in the Appendix to the brief is correct.

(9) *Prior Art of Record*

5,188,297	ASANO	2-1993
6,224,002	REITER	5-2001

(10) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 2, 6-9 stand rejected under 35 U.S.C. 102(e) as being anticipated by Reiter (6,224,002).

Reiter discloses a fuel injection valve comprising: a needle valve 18; an armature 21; a solenoid/coil 1; an elastic member 35; a sleeve 33, 34; a core 2; a valve holder 13, 16.

Claims 6-9 stand rejected under 35 U.S.C. 102(b) as being anticipated by Asano (5,188,297).

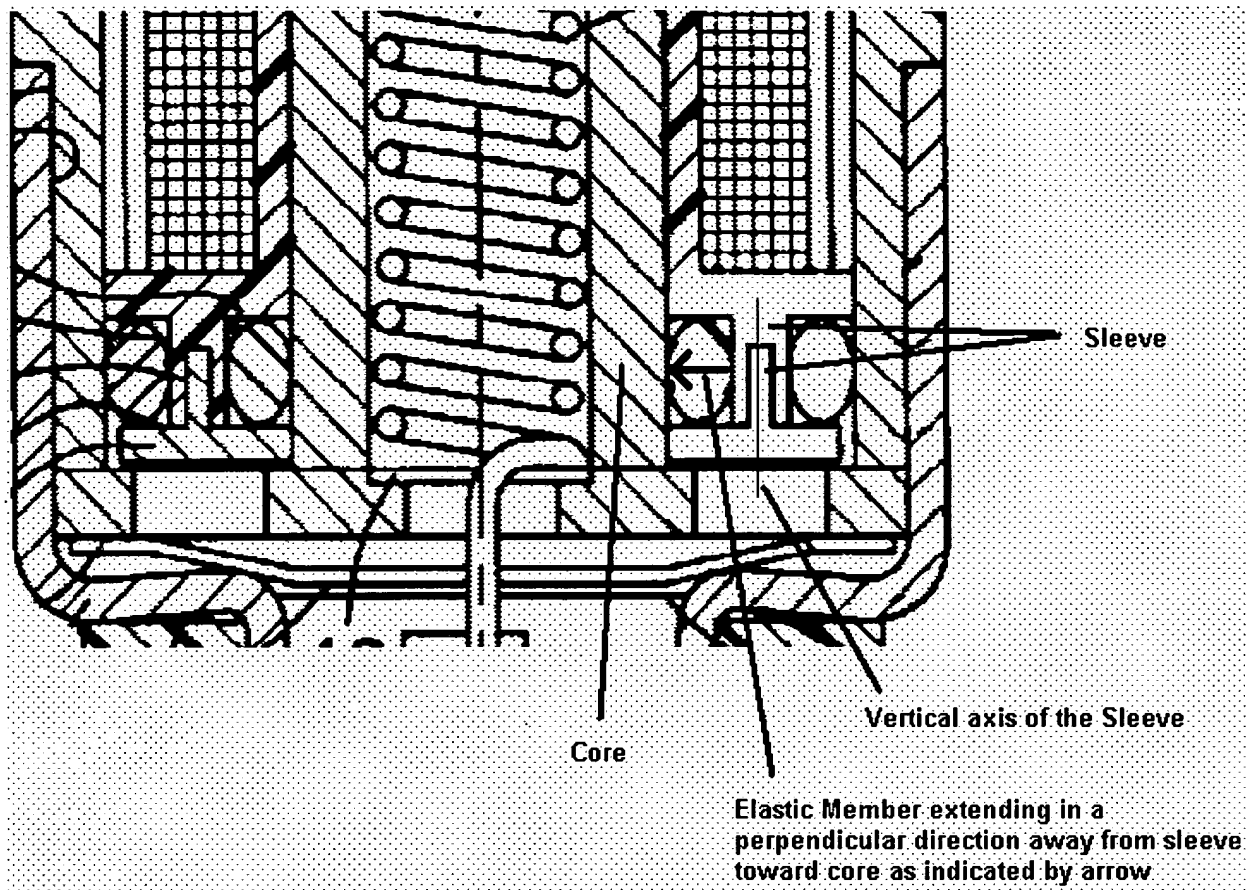
Asano discloses a fuel injection valve comprising: a needle valve 31; an armature 32; a solenoid 44; a sleeve 22; a buffer portion/means for damping 39 being an elastic member (O-ring); a fuel passage 22f; an end face (down stream side of 32); a nozzle opening 27; a core 36. O-ring 39 inherently functions as a buffer portion.

(11) Response to Argument

Appellant's arguments directed to Reiter.

Appellant argues that Reiter does not teach or suggest at least "said elastic member extending in a perpendicular direction away from said sleeve toward said core," as recited in claim 2. Reiter does show such configuration. Reiter shows a core, elastic member and sleeve which are concentrically arranged when view from above. The core is the inner most element and the sleeve is the outer most element with the elastic member between the core and the sleeve in the concentric arrangement. Portion of Reiter's figure 1 is reproduced below with crosshatching removed for clarity. The added

arrow shows the elastic member extending in a perpendicular direction away from the sleeve toward the core. The arrow is perpendicular to the vertical axis of the sleeve.



Appellant argues that the sealing ring of Reiter extends in a vertical direction towards a top portion of the fuel injection valve but does not extend toward the core. It appears that appellant's argument is on the basis that the elastic member (sealing ring) of Reiter is shown as having a longer vertical axis than a horizontal axis. Appellant's figure 1 shows a similarly shaped O-ring. Appellant's specification does not give the term "extending" any particular definition. The elastic member of Reiter is a three-dimensional object and extends in the vertical direction as well as in the horizontal direction. Appellant argues that Reiter's sleeve 33 is located vertically below the sealing

ring 35 and the tubular core 2 is located horizontally adjacent to the sleeve 33, therefore, the sealing ring 35 does not extend in a perpendicular direction away from the sleeve 33 toward the core. Appellant is defining the "sleeve" as the portion of element 33 above the sealing ring 35. The "sleeve" is read as the portion of Reiter's elements 33 and 34 which are concentrically outside of sealing ring 35. See figure above.

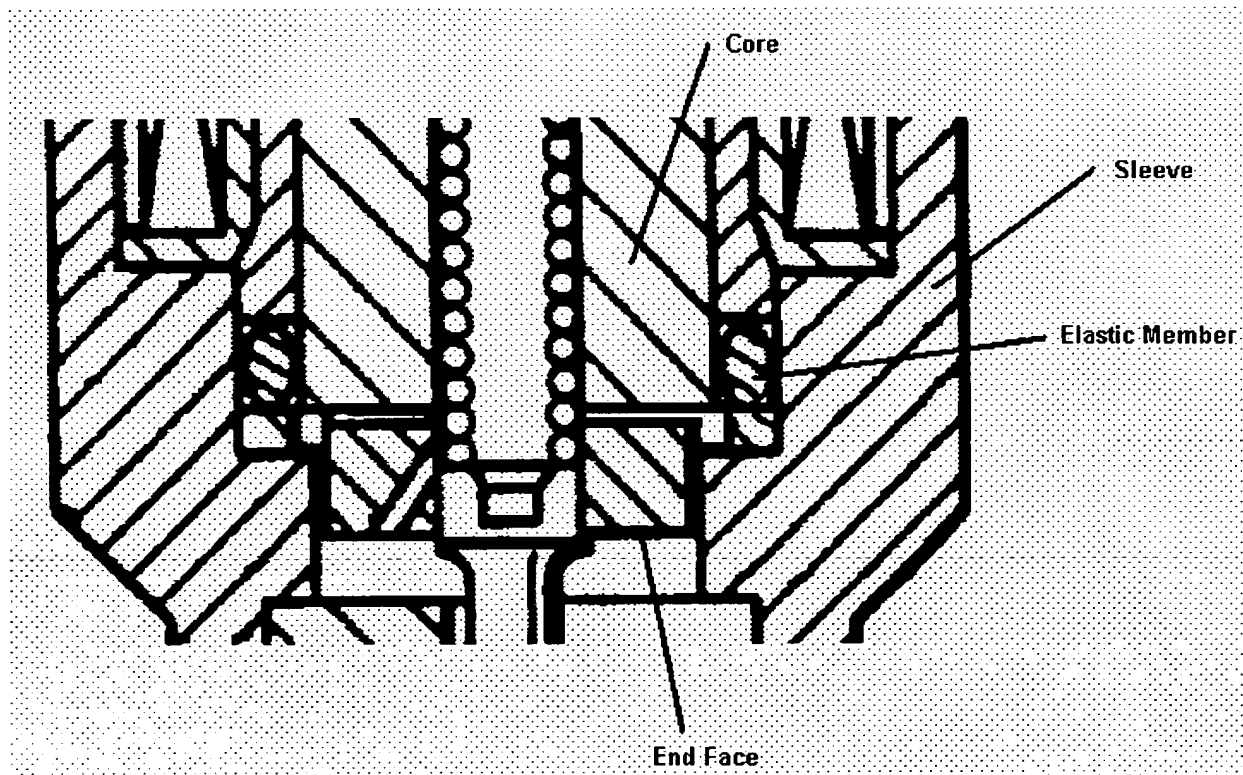
Appellant argues that Reiter does not teach "a buffer portion damping a change of fuel pressure caused by valve bounce when the needle is closed. Appellant's specification (page 7, line 8) discloses the "buffer portion" being a "rubber ring". Reiter discloses sealing ring 35 as an O-ring (column 3, lines 40-41). An O-ring is a rubber ring. The O-ring of Reiter is similarly situated as appellant's disclosure and meets all the physical configuration of appellant's claims. Note that appellant's rubber ring 18 is fully encased by core 4 and sleeve 17 (appellant's figure 1). The O-ring of Reiter inherently functions as a "buffer portion". If Reiter's O-ring did not contact fuel, the O-ring would not be required. The fact that the O-ring of Reiter performs a sealing function does not preclude it from inherently functioning as a "buffer portion".

Appellant argues that members 33 and 34 ("protruded portions of a support ring") of Reiter cannot be read as sleeves as described in claims. Appellant fails to identify claim limitations that further define the sleeve that would distinguish appellant's "sleeve" from that of Reiter. Nothing in appellant's claims prevents reading "sleeve" on Reiter's elements 33, 34.

Appellant makes similar arguments for claims 6-9. The responses above apply equally to claims 6-9.

Appellant's arguments directed to Asano.

Appellant argues that Asano does not teach "a buffer portion damping a change of fuel pressure caused by valve bounce when the needle is closed, said buffer portion being an elastic member disposed at a position at which said buffer portion faces and contacts a fuel passage located at an upstream side with respect to an end face of said armature located on a side of a nozzle opening side." Asano discloses an elastic member 39 that faces and contacts a fuel passage (from space that the armature occupies to the space that the O-ring occupies) located at an upstream side with respect to an end face (down stream side of 32) of the armature 32 located on a side of a nozzle opening side. Portion of Asano's figure 1 is reproduced below.

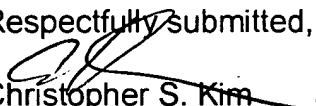



Appellant argues that Asano discloses the O-ring functioning as a sealing means and not as a buffer portion. The O-ring of Asano is similarly situated as applicant's disclosure and meets all the physical configuration of appellant's claims. Appellant's buffer portion (O-ring 18) is fully encased between core 4 and sleeve 17. Asano's O-ring is a rubber ring just as appellant's buffer portion is a rubber ring. Asano's O-ring is encased between core 36, sleeve 22, and elements 38, 40. The fact that Asano discloses the O-ring functioning as a sealing means does not prevent it from inherently functioning as a "buffer portion". Fuel contacts Asano's O-ring. Otherwise, the O-ring would not be needed. The elasticity of the O-ring inherently functions as a buffer portion.




Appellant argues that Asano does not disclose "wherein substantially all of said buffer portion contacts fuel in said fuel passage". Appellant's argument is not commensurate in scope with the claimed invention. The phrase "substantially all" is not found in the claims. Additionally, it is not supported by the specification, as originally filed. The phrase was deleted in the amendment filed on June 17, 2003 following a new matter rejection for the addition of the phrase (see Office actions, paper numbers 27 and 32, mailed on October 4, 2002 and March 21, 2003, respectively). Conversely, appellant argues, for over a page, the criticality of "substantially all" of the buffer portion contacting fuel in the fuel passage to properly dampen pressure change to prevent needle bounce. The fact that the claims now do not recite "substantially all", should it be taken that the claims fail to recite a critical feature rendering the claims indefinite under 35 USC 112, second paragraph?

Finally, appellant argues "means plus function". Reiter and Asano both disclose an O-ring. Appellant's buffer portion is an rubber ring. An O-ring is a rubber ring, and even if it wasn't, it surely is an equivalence thereof. The elasticity of Reiter and Asano's O-ring inherently functions to dampen the fuel pressure change caused by needle bounce.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Christopher S. Kim
Primary Examiner
Art Unit 3752

CK 
July 20, 2004

Conferees
Michael Mar 
Denise Pothier 
Steve Ganey 

SUGHRUE MION ZINN MACPEAK & SEAS
2100 PENNSYLVANIA AVENUE NW
WASHINGTON, DC 20037